April 4, 1997

MEMORANDUM

TO: Orville D. Green, Assistant Administrator
Air & Hazardous Waste

FROM: Martin Bauer, Chief
Air Quality Permitting Bureau

SUBJECT: Issuance of Tier II Operating Permit #001-00049 to
Koch Materials Company - Boise Asphalt Plant (Boise)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the controls of Air Pollution in Idaho) for issuing Operating Permits.

PROJECT DESCRIPTION

This project is for the issuance of a Tier II Operating Permit (OP) for the Koch Materials Company - Boise Asphalt Plant located at Boise, Idaho, in order to establish the facility as a synthetic minor source. Emission point sources existing at the facility are as follows: two (2) boilers, one (1) hot oil heater, twenty-seven (27) storage tanks, and five (5) loading racks. Minor source includes the waste oil burner. Fugitive emission sources found at the facility are pumps, valves, fittings, paved, and unpaved roads.

SUMMARY OF EVENTS

On July 31, 1995, the Division of Environmental Quality (DEQ) received an application for a Tier II OP. On August 23, 1995, the application was declared administratively complete. On September 25, 1995, DEQ sent a letter requesting additional information to facilitate the writing of the Tier II OP. On October 16, 1995, DEQ received a letter requesting a two (2) week extension, which was prompted by the phone conversation between Mark Sanders, Project Engineer of the facility, and Robert Baldwin, Air Quality Engineer, of DEQ. The supplemental materials were received by DEQ on November 2, 1995.

Staff determined during the comment period that Koch Materials had not paid fees for 1994, 1995, and part of 1996. The fees were determined by staff and a request for payment was sent. The fees were paid on August 26, 1996. A telephone conversation with Mark Sanders indicated that Koch Materials Company, Boise, discovered sources that were not in the original application. The Department requested that all changes and additions be submitted in writing. The letter from the Boise Koch facility was received on January 17, 1997.

RECOMMENDATIONS

Based on the review of the OP application and on applicable state and federal regulations concerning the permitting of air pollution sources, the Bureau recommends that Koch Materials Company - Boise Asphalt Plant, in Boise, be issued a Tier II Operating Permit. Staff members also recommend that the facility be notified in writing of the obligation to pay permit application fees for the Tier II permit.

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cc: S. West, Boise Regional Office
OP File Manual
Source File
COF

April 4, 1997

MEMORANDUM

TO: Martin Bauer, Chief
Air Quality Permitting Bureau
Air and Hazardous Waste

FROM: Robert Baldwin, Air Quality Engineer
Air Quality Permitting Bureau
Operating Permits Section
Yihong Chen, Air Quality Engineer
Air Quality Permitting Bureau
Operating Permits Section

THROUGH: Susan J. Richards, Air Quality Permit Manager
Air Quality Permitting Bureau
Operating Permits Section

SUBJECT: Technical Analysis for Tier II Operating Permit #001-00049
Koch Materials Company, Boise, Idaho.

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the Control of Air Pollution in Idaho) for issuing Operating Permits.

FACILITY DESCRIPTION

Koch Materials Company is an asphalt processing facility. Koch Materials Company receives asphalt by truck and rail. The asphalt is mixed with the appropriate additives to produce asphalt cement, asphalt emulsion, and cutback asphalt. The products produced at the facility are shipped by truck.

PROJECT DESCRIPTION

This project is for an Operating Permit (OP) for the following existing point and fugitive emission sources.

Point Sources:

Fuel Burning Equipment

(1) Boiler #1 - Natural Gas-fired with a maximum rated capacity of 14.0 MM Btu/hr used for the process. The boiler was constructed in 1975 and is not a NSPS source.

Boiler Specifications:

Manufacturer:	Kewanee
Model:	H3S-400-GO
Max. Hourly Combustion Rate:	13.4×10^3 SCF/hr
Fuel:	Natural Gas
Secondary Fuel:	#1 or #2 Fuel Oil

Stack Design Specifications:

Height:	24 feet
Exit Diameter:	2.0 feet
Exit Gas Flow Rate:	Unknown
Exit Temperature:	400°F (estimated)

(2) Boiler #2 - Natural Gas-fired with a maximum rated capacity of 14.0 MM Btu/hr used for the process. The boiler was constructed in 1975 and is not a NSPS source.

Boiler Specifications:

Manufacturer:	Kewanee
Model:	H3S-400-GO
Max. Hourly Combustion Rate:	13.4×10^3 SCF/hr
Fuel:	Natural Gas
Secondary Fuel:	#1 or #2 Fuel Oil

Stack Design Specifications:

Height:	24 feet
Exit Diameter:	2.0 feet
Exit Gas Flow Rate:	Unknown
Exit Temperature:	400°F (estimated)

(3) Hot Oil Heater - Natural Gas-fired with a maximum rated capacity of 6 MM Btu/hr used for the process. The heater was constructed in 1993 and is not a NSPS source.

Hot Oil Heater Specifications:

Manufacturer:	Cleaver-Brooks
Model:	IBT-200-50
Max. Hourly Combustion Rate:	6.0×10^3 SCF/hr
Fuel:	Natural Gas

Stack Design Specifications:

Height:	22 feet
Exit Diameter:	1 feet
Exit Gas Flow Rate:	Unknown
Exit Temperature:	700°F (estimated)

Storage Tanks

(1) Tank #1 - Fixed roof tank with a rated capacity of 2,121,077 gallons. The tank was installed in 1991 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart Kb. The tank will not be regulated by the requirements due to the low true vapor pressure of asphalt except of §60.116b, a & b.

Tank #1's Specifications:

Material Handling:	Asphalt
Tank Type:	Fixed Roof
Tank Capacity:	2,121,077 gallons

(2) Tank #2 - Fixed roof tank with a rated capacity of 1,070,821 gallons. The tank was installed in 1975 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart K.

Tank #2's Specifications:

Material Handling:	Asphalt
Tank Type:	Fixed Roof
Tank Capacity:	1,070,821 gallons

(3) Tanks #4, #5, #6, #7, #9, #17 - Fixed roof tanks with a rated capacity of 105,760 gallons. Each tank was installed in 1975 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart K.

Tanks #4, #5, #6, #7, #9, #17's Specifications:

Material Handling:	Asphalt
Tank Type:	Fixed Roof
Tank Capacity:	105,760 gallons

(4) Tank #8 - Fixed roof tank with a rated capacity of 50,000 gallons. The tank was installed prior to 1980. The tanks is subjected to 40 CFR 60 Subpart Kb. The tank will not be regulated by the requirements due to the low true vapor pressure of asphalt cutback except for §60.116b, a&b.

Tank #8's Specifications:

Material Handling:	Cutback Asphalt
Tank Type:	Fixed Roof
Tank Capacity:	50,000 gallons

(5) Tank #10 - Fixed roof tank with a rated capacity of 13,514 gallons. The tank was installed in 1985. The tank is subjected to 40 CFR 60 Subpart Kb. The tank will not be regulated by the requirements due to the low true vapor pressure of naphtha except for §60.116b, a&b.

Tank #10's Specifications:

Material Handling:	Naphtha
Tank Type:	Fixed Roof
Tank Capacity:	13,514 gallons

(6) Tank #12 - Fixed roof tank with a rated capacity of 49,384 gallons. The tank was installed in 1975 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart K.

Tank #12's Specifications:

Material Handling:	Cutback Asphalt
Tank Type:	Fixed Roof
Tank Capacity:	49,384 gallons

(7) Tank #13 - Fixed roof tank with a rated capacity of 105,760 gallons. The tank was installed in 1975 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart K.

Tank #13's Specifications:

Material Handling:	Cutback Asphalt
Tank Type:	Fixed Roof
Tank Capacity:	105,760 gallons

(8) Tank #14 - Fixed roof tank with a rated capacity of 49,384 gallons. The tank was installed in 1975 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart K.

Tank #14's Specifications:

Material Handling:	Naphtha
Tank Type:	Fixed Roof
Tank Capacity:	49,384 gallons

(9) Tank #15 - Fixed roof tank with a rated capacity of 49,384 gallons. The tank was installed in 1975 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart K.

Tank #15's Specifications:

Material Handling:	Asphalt
Tank Type:	Fixed Roof
Tank Capacity:	49,384 gallons

(10) Tank #16 - Fixed roof tank with a rated capacity of 79,384 gallons. The tank was installed in 1975 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart K.

Tank #16's Specifications:

Material Handling:	Asphalt
Tank Type:	Fixed Roof
Tank Capacity:	79,384 gallons

(11) Tank #18, #20, #22, #23, and #24 - Fixed roof tank with a rated capacity of 49,384 gallons. It was installed in 1975 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart K.

Tank #18, #20, #22, #23, and #24's Specifications:

Material Handling:	Asphalt Emulsion
Tank Type:	Fixed Roof
Tank Capacity:	49,834 gallons

(12) Tank #19 - Fixed roof tank with a rated capacity of 38,074 gallons. The tank was installed in 1975 and is not an NSPS source.

Tank #19's Specifications:

Material Handling:	Asphalt Emulsion
Tank Type:	Fixed Roof
Tank Capacity:	38,074 gallons

(13) Tank #21 - Fixed roof tank with a rated capacity of 67,686 gallons. The tank was installed in 1975 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart K.

Tank #21's Specifications:

Material Handling:	Asphalt Emulsion
Tank Type:	Fixed Roof
Tank Capacity:	67,686 gallons

(14) Tank #25 - Fixed roof tank with a rated capacity of 59,261 gallons. The tank was installed in 1975 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart K.

Tank #25's Specifications:

Material Handling:	Asphalt Emulsion
Tank Type:	Fixed Roof
Tank Capacity:	59,261 gallons

(15) Tank #26 and #27 - Fixed roof tank with a rated capacity of 30,083 gallons. The tank was installed in 1975 and is not an NSPS source.

Tank #26 and #27's Specifications:

Material Handling:	Asphalt
Tank Type:	Fixed Roof
Tank Capacity:	30,083 gallons

(16) Tank #28 - Fixed roof tank with a rated capacity of 24,066 gallons. The tank was installed in 1975 and is not an NSPS source.

Tank #28 Specifications:

Material Handling:	#1 Fuel Oil
Tank Type:	Fixed Roof
Tank Capacity:	24,066 gallons

(17) Tank #29 - Fixed roof tank with a rated capacity of 21,328 gallons. The tank was installed in 1985 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart Kb. The tank will not be regulated by the requirements due to the low true vapor pressure of #2 fuel oil except for §60.116b, a&b.

Tank #29 Specifications:

Material Handling:	#2 Fuel Oil
Tank Type:	Fixed Roof
Tank Capacity:	21,328 gallons

(18) Tank #38 - Fixed roof tank with a rated capacity of 4,220,061 gallons. The tank was installed in 1995 and is an NSPS source. The tank is subjected to 40 CFR 60 Subpart Kb. The tank will not be regulated by the requirements due to the low true vapor pressure of asphalt except for §60.116b, a&b.

Tank #38 Specifications:

Material Handling:	Asphalt
Tank Type:	Fixed Roof
Tank Capacity:	4,220,061 gallons

(19) Tank #39 - Fixed roof Tank with a rated capacity of 12,000 gallons. The tank was installed in 1997 and is a NSPS source. The tank is subjected to 40 CFR 60 Subpart Kb. The tank will not be regulated by the requirements due to the low true vapor pressure of #2 diesel fuel except for §60.116b, a&b.

Tank #39 Specifications:

Material Handling:	#2 Diesel Fuel
Tank Type:	Fixed Roof
Tank Capacity:	12,000 gallons

Loading Rack

(1) Loading Rack #1 and #2 - Asphalt Cement loading arm. These racks were installed in 1975.

Loading Rack #1 and #2 Specifications:

Material Handling:	Asphalt Cement
Type of Loading:	Overhead loading - splash fill, normal service
Total Annual Throughput:	50,000,000 gallons

(2) Loading Rack #3 - Cutback Asphalt loading arm. This rack was installed in 1975.

Loading Rack #3 Specifications:

Material Handling:	Cutback Asphalt
Type of Loading:	Overhead loading - splash fill, normal service
Total Annual Throughput:	15,000,000 gallons

(3) Loading Rack #4 & #5 - Asphalt Emulsion loading arm. These racks were installed in 1975.

Loading Rack #4 & #5 Specifications:

Material Handling:	Asphalt Emulsion
Type of Loading:	Overhead loading - splash fill, normal service
Total Annual Throughput:	50,000,000 gallons

Minor Source:

(1) Waste Oil Burner

Manufacturer:	Clean Burn
Model:	CB-85-C
Maximum Capacity:	300,000 BTU/hr

Fugitive Sources:

(1) Pumps, valves, and fittings.
(2) Paved and Unpaved Roads.

SUMMARY OF EVENTS

On July 31, 1995, The Division of Environmental Quality (DEQ) received Koch Materials Company's Tier II operating permit application. After review of the materials submitted, DEQ determined that the application was administratively complete on August 30, 1995. On September 25, 1995, DEQ sent a letter requesting additional information to facilitate the writing of the Tier II operating permit. On October 16, 1995, DEQ received a letter requesting a two week extension, which was based on the phone conversation between Mark Sanders, Project Engineer of the facility and Bob Baldwin, Air Quality Engineer of DEQ. The supplemental materials were received by DEQ on November 2, 1995.

Staff determined during the comment period that Koch Materials had not paid fees for 1994, 1995, and part of 1996. The fees were determined by staff and a request for payment was sent. The fees were paid on August 26, 1996. A telephone conversation with Mark Sanders indicated that Koch Materials Company, Boise, discovered sources that were not in the original application. The Department requested that all changes and additions be submitted in writing. The letter from the Boise Koch facility was received on January 17, 1997.

DISCUSSION

1. Emission Estimates

Emission estimates for the combustion units, storage tanks, and loading racks were provided by Koch Materials Company and can be seen in the July 31, 1995, application. DEQ has estimated the PM, PM-10, SO_2, NO_x, CO, and the VOC emissions for the combustion units by using emission factors from AP-42(1/95), Section 1.4 (natural gas combustion). Due to the lack of data for Asphalt, Asphalt Emulsion, and Cutback Asphalt, the molecular weight of No.6 fuel oil vapor and its true vapor pressure have been used for Asphalt and Asphalt Emulsion. Data for the mixture of No.2 fuel and Asphalt have been used for Cutback Asphalt, which is a more conservative assumption.

VOC is the pollutant that triggers major source status for Koch Materials Company. The potential to emit (PTE) is above 100 t/yr according to applicant's application.

The applicant chose to net out of Tier I permitting by limiting the potential to emit of VOC to less than 100 t/yr. The applicant proposed the following enforceable limits: 1) natural gas usage for Kewanee Boilers shall not exceed 117.4 million standard cubic feet per year (MMscf/yr) each; 2) the fuel oil consumption of each Kewanee Boiler shall not exceed 885,917 gallons per year; 3) the natural gas usage for Cleaver Brooks Hot Oil Heater shall not exceed 52.56 MMscf/yr; 4) the annual throughput for the facility shall not exceed 50,000,000 gallons of asphalt cement, 50,000,000 gallons of asphalt emulsion, and 15,000,000 gallons of cutback asphalt.

The calculations for the tank emissions were based on the use of Tanks Program 2.0. The total combined throughputs of the tanks were 1,173,000,000 gallons asphalt, 400,000,000 gallons asphalt emulsion, 30,000,000 gallons cutback asphalt, 2,250,000 gallons Kerosene, 2,250,000 gallons #2 fuel oil, and 9,000,000 gallons naphtha.

The Hazardous Air Pollutants (HAPs) emission rate was based on the total potential VOC emissions. The potential VOC emissions (with throughput restrictions on tanks and loading racks) are estimated at seventy-eight (78) tons/year. Naphthalene and Polycyclic Organic Matter are estimated at 0.000004 weight percent each. These calculations equate to 0.00031 ton per year of Naphthalene and Polycyclic Organic Matter each. Koch Materials Company has requested HAPs limits of 8 tons per year of any individual hazardous air pollutant and 20 tons per year of all combined HAPs.

Modeling has not been performed due to this source's low emissions at the proposed operating rates. An additional consideration was that storage tanks are not subject to the VOCs limitations of 40 CFR 60 even though it is an NSPS source according to the installation date and tank capacity. This consideration will remain valid unless the types and the respective quantities of materials stored mentioned above are changed. If such a change occurs a reevaluation would be needed.

Compliance determination shall be based on the sections, OPERATING REQUIREMENTS and MONITORING AND RECORDKEEPING REQUIREMENTS, in the permit. Compliance with the annual emission standard is based on the most recent twelve (12) months of product volume data. This is due to the product volume being the parameter of concern when calculating the emissions.

2. Area Classification

Koch Materials Company's facility is located in Boise, Ada County, Idaho. This area is located in AQCR 64. The area is classified as nonattainment for the criteria air pollutants CO and PM-10. The area is classified as attainment or unclassifiable for federal and state for all other criteria air pollutants (i.e., NO_x, VOC, and SO_2).

3. Facility Classification

The facility is not a designated facility as defined in IDAPA 16.01.01.25. The facility is classified as an A2 source because the actual emissions of VOC is less than 100 tons per year.

4. Regulatory Review

This operating permit is subject to the following permitting requirements:

a.	IDAPA 16.01.01.401	Tier II Operating Permit.
b.	IDAPA 16.01.01.403	Permit Requirements for Tier II Sources.
c.	IDAPA 16.01.01.404.01(c)	Opportunity for Public Comment.
d.	IDAPA 16.01.01.404.04	Authority to Revise Operating Permits.
e.	IDAPA 16.01.01.406	Obligation to Comply.
f.	IDAPA 16.01.01.470	Permit Application Fees for Tier II Permits.
g.	IDAPA 16.01.01.625	Visible Emission Limitation.
h.	IDAPA 16.01.01.650	General Rules for the Control of Fugitive Dust.
i.	IDAPA 16.01.01.675&677	Fuel Burning Equipment - Particulate Matter. Standards for Minor and Existing Sources.
j.	IDAPA 16.01.01.725&728	Rules for Sulfur Content of Fuels. Distillate Fuel Oil.
k.	40 CFR 60 Subpart K	Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction or Modification Commenced After June 11, 1973, and Prior to May 19, 1978.
l.	40 CFR 60 Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquids Storage Vessels) for Which Construction, Reconstruction or Modification Commenced After July 23, 1984.

FEES

Fees apply to this facility in accordance with IDAPA 16.01.01.470. The facility is subject to permit application fees for Tier II permits of five hundred dollars ($500.00). IDAPA 16.01.01.470 became effective on March 7, 1995.

RECOMMENDATIONS

Based on the review of the Operating Permit application and on applicable state and federal regulations concerning the permitting of air pollution sources, the Bureau recommends that Koch Materials Company in Boise be issued a Tier II Operating Permit for the sources that exist at the facility. Staff members also recommend that the facility be notified of the Tier II permit fee requirement in writing. This fee will be applicable upon issuance of the permit.

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Attachments

cc: S. West, Boise Regional Office
Source File
COF

APPENDIX A

Koch Materials Company (Boise)					
4303 Gekeler					
Boise, Idaho 83715					
	PM	CO	NOx	SOx	VOC
Source	T/yr	T/yr	T/yr	T/yr	T/yr
Boiler #1 (NG)	0.8	2.05	8.22	0.04	0.16
Boiler #1 (Oil)	0.89	2.21	8.86	31.9	0.09
Boiler #2 (NG)	0.8	2.05	8.22	0.04	0.16
Boiler #2 (Oil)	0.89	2.21	8.86	31.9	0.09
Hot Oil Heater	0.32	0.55	2.63	0.02	0.14
Amount of fuel usage		Basis Maximum Capacity for 8760 hours.			
Boiler #1 (NG)	117.4	MMSCF/yr			
Boiler #1 (Oil)	885,917	Gallons			
Boiler #2 (NG)	117.4	MMSCF/yr			
Boiler #2 (Oil)	885,917	Gallons			
Hot Oil Heater	52.56	MMSCF/yr			